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EXAMINER				
MULLINS, BURTON S				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,020

**Applicant(s)**

TAGAWA, HIROSHI

**Examiner**

BURTON MULLINS

**Art Unit**

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-11, 13-16, 18 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 8, 12, 17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 23 March 2006 has been partially considered by the examiner. It is noted that JP 62-161573 and JP 11-322662 appear to have been mis-cited both on the International Search Report and on applicant's IDS. Their respective disclosures of a "Regulation Mechanism for Positioning of Printing Head" and "Production of 5-Cyclohexadecen-1-One and Production Unit Therefor" have no relation to applicant's brushless detector invention. Therefore, these citations have not been considered. Applicant is requested to provide the correct numbers and publication dates.

***Response to Amendment***

3. The preliminary amendment filed on 23 March 2006 has been entered.

***Drawings***

4. The drawings are objected to because the figures lack designations. Further, "Prior Art" label is required for Fig.5 per specification p.1. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The disclosure is objected to because of the following informalities:

Reference to specific claims on pp.2-4 should be removed.

On pp.6-7 reference is made to the “height” of stator magnetic shielding sections 44a (Fig.2a) and 44b (Fig.2b). However, the “height” would be more correctly termed the “radial width”. Similarly, on pp.9-10 reference is made to the “height” of the rotor magnetic shielding section 34 (Figs.4a&4b)

Appropriate correction is required.

***Claim Objections***

6. Claims 2, 4, 6-8 and 11-12 are objected to because of the following informalities: Per the objection to the specification above, the term “height” is inappropriate for describing what actually is the radial width of the stator or rotor magnetic shielding section with reference to the radial width of the stator or rotor transformer. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Dulin et al. (US 6,118,201). Dulin teaches a shielding structure for a brushless type rotation detector comprising: a signal modulation section for modulating an output voltage induced by an excitation voltage according to a rotation angle to be detected (rotary resolver/transformer 10/20; Fig.1); and a case 12 that houses the signal modulation section, characterized in that said shielding structure includes a stator magnetic shielding section (resolver ring or flux absorber

element) 100 or 140 that can provide a magnetic shield between a stator (resolver) iron core 60 and a stator transformer 26 that constitute said signal modulation section (Fig.2; c.4:32-c.5:27).

Regarding claim 3, the shielding structure 140 is a ring-shaped structure including said stator magnetic shielding section (not numbered, radially extending portion; Fig.2) integrally formed with said case 12 (Fig.2), and said stator magnetic shielding section has the same “height” (i.e., radial width) as said stator transformer 26 and the stator iron core 60 (Fig.2) and is formed without a hole section (Fig.2).

9. Claims 1-3 are rejected under 35 U.S.C. 102(a/e) as being anticipated by Tezuka et al. (US 2004/0046627 A1). Tezuka teaches a shielding structure for a brushless type rotation detector comprising: a signal modulation section for modulating an output voltage induced by an excitation voltage according to a rotation angle to be detected (rotary resolver/transformer 402/403; Figs.1&4); and a case 401 that houses the signal modulation section, characterized in that said shielding structure includes a stator magnetic shielding section (shield plate) 9a that can provide a magnetic shield between a stator (resolver) iron core 405 and a stator transformer 407 that constitute said signal modulation section (Figs.1&4; par.0004).

Regarding claim 2, the shielding structure 9a is a ring-shaped structure including said stator magnetic shielding section (not numbered, radially extending portion adjacent transformer stator 407; Fig.1) and a securing section (not numbered, axially extending portion adjacent inner wall of case 401; Fig.1) for mounting the structure to an inner surface of said case 401, said securing section is formed into a flange shape (i.e., axially extending portion adjacent inner wall of case 401; Fig.1) and has an insertion hole section (not numbered, Fig.1) into which a lead 440 from said stator (resolver) iron core 405 is inserted, and said stator magnetic shielding section

has the same “height” (i.e., radial width) as said stator transformer 407 and the stator iron core 405 (Fig.1) and is formed without a hole section (as seen in Fig.1, the hole is radially oriented, in the flange of the securing section adjacent the inner wall of case 401).

Regarding claim 3, the shielding structure 9a is a ring-shaped structure including said stator magnetic shielding section (not numbered, radially extending portion adjacent transformer stator 407; Fig.1) integrally formed with said case 401 (Fig.1), and said stator magnetic shielding section has the same “height” (i.e., radial width) as said stator transformer 407 and the stator iron core 405 (Fig.1) and is formed without a hole section (as seen in Fig.1, the hole is radially oriented, in the flange of the securing section adjacent the inner wall of case 401).

### *Claim Rejections - 35 USC § 103*

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Tezuka et al. (US 2004/0046627 A1) or Dulin et al. (US 6,118,201). Tezuka teaches applicant's invention including a stator magnetic shielding section 9a, a rotor transformer 413 and a rotor (resolver) iron core 411 (Fig.1); however, the “height” (i.e., radial width) of the magnetic shield 9a not big enough to provide a shield between the rotor transformer 413 and the rotor iron core 411. Similarly, Dulin teaches all the claimed features except for the “height” (i.e., radial width) of the magnetic shield 100 or 140 not big enough to provide a shield between the rotor

transformer 36 and the rotor iron core 66. However, extending the “height” or radial width of the shield in either Tezuka or Dulin to provide a shield between the rotor transformer and the rotor iron core would have been obvious since this would have involved only modifying the radial size of the shield, and modifications of size have been held to involve ordinary skill. In re Rose 105 USPQ 237 (CCPA 1955).

12. Claims 5, 7, 9, 16, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tezuka et al. (US 2004/0046627 A1) in view of Yumiki et al. (US 5,347,256). Tezuka teaches a brushless type rotation detector comprising: a signal modulation section for modulating an output voltage induced by an excitation voltage according to a rotation angle to be detected (rotary resolver/transformer 402/403; Figs.1&4); and a case 401 that houses the signal modulation section. Tezuka further teaches a stator shielding structure having a stator magnetic shielding section 9a that can provide a magnetic shield between a stator (resolver) iron core 405 and a stator transformer 407 that constitute said signal modulation section (Figs.1&4; par.0004), and a rotor iron core 411 and a rotor transformer 413 that constitute said signal modulation section. Tezuka does not teach “a rotor magnetic shielding section that can provide a magnetic shield between a rotor iron core and a rotor transformer that constitute said signal modulation section.”

Yumiki teaches a rotary transformer including rotary cores 1a,1b of ferromagnetic material and including a member 3 of electrically conductive material connected to common ground (c.4:25-31; Fig.2). The electrically conductive material 3 functions as a magnetic shield since, by virtue of a common ground connection, it completely cuts off magnetic flux paths 9



between the cores that would otherwise result in crosstalk between the two signals in the two cores (c.5:10-24).

It would have been obvious to modify Tezuka and provide a rotor magnetic shielding section per Yumiki that can provide a magnetic shield between a rotor iron core and a rotor transformer that constitute said signal modulation section since this would have magnetically isolated the rotor iron core from the rotor transformer, thus eliminating electro-magnetic crosstalk.

Regarding claim 7, Yumiki's shielding structure comprising a ring-shaped structure including a rotor magnetic shielding section 3 is integrally formed with said rotor (Fig.2), and said rotor magnetic shielding section 3 has the same "height" (i.e., radial width) as said rotor transformer and the rotor iron core (Fig.2).

Regarding claims 16, 18 and 20, while Tezuka and Yumiki do not specify "...a one phase excitation/two phase output brushless resolver, a two phase excitation/one phase output brushless resolver, or a two phase excitation/two phase output brushless resolver", one of ordinary skill would have found any of these combinations obvious matters of engineering design in light of the teaching by Tezuka that the output of the resolver is determined by the number of poles, the phase of the drive voltage, etc. (par.0007).

13. Claims 5, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dulin (US 6,118,201) in view of Yumiki et al. (US 5,347,256). Dulin teaches all of the claimed features except for a rotor magnetic shielding section.

Yumiki teaches a rotary transformer including rotary cores 1a,1b of ferromagnetic material and including a member 3 of electrically conductive material connected to common

ground (c.4:25-31; Fig.2). The electrically conductive material 3 functions as a magnetic shield since, by virtue of a common ground connection, it completely cuts off magnetic flux paths 9 between the cores that would otherwise result in crosstalk between the two signals in the two cores (c.5:10-24).

It would have been obvious to modify Dulin and provide a rotor magnetic shielding section per Yumiki that can provide a magnetic shield between a rotor iron core and a rotor transformer that constitute said signal modulation section since this would have magnetically isolated the rotor iron core from the rotor transformer, thus eliminating electro-magnetic crosstalk.

Regarding claim 7, Yumiki's shielding structure comprising a ring-shaped structure including a rotor magnetic shielding section 3 is integrally formed with said rotor (Fig.2), and said rotor magnetic shielding section 3 has the same "height" (i.e., radial width) as said rotor transformer and the rotor iron core (Fig.2).

14. Claims 10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tezuka et al. (US 2004/0046627 A1). Tezuka teaches applicant's invention but does not specify "...a one phase excitation/two phase output brushless resolver, a two phase excitation/one phase output brushless resolver, or a two phase excitation/two phase output brushless resolver." However, one of ordinary skill would have found any of these combinations obvious matters of engineering design in light of the teaching by Tezuka that the output of the resolver is determined by the number of poles, the phase of the drive voltage, etc. (par.0007).

***Allowable Subject Matter***

15. Claims 6, 8, 12, 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the prior art does not teach the claimed shielding structure including, inter alia, the shielding structure is a ring-shaped structure including said rotor magnetic shielding section and a securing section for mounting the structure to a surface of said rotor, said securing section is formed into a flange shape, and said rotor magnetic shielding section has the same "height" [sic] as said rotor transformer and the rotor iron core.

Regarding claim 12, the prior art does not teach the claimed shielding structure including, the rotor magnetic shielding section having a "height" [sic] capable of also providing a shield between said stator transformer and the stator iron core.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BURTON MULLINS whose telephone number is (571)272-2029. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BURTON MULLINS/  
Primary Examiner, Art Unit 2834

bsm  
03 September 2008